UNITED STATES PATENT AND TRADEMARK OFFICE **CERTIFICATE OF CORRECTION**

PATENT NO.

: 7,125,809 B1

Page 1 of 3

APPLICATION NO.: 09/653561

DATED

: October 24, 2006

INVENTOR(S)

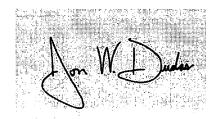
: Larry Hillyer et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Delete Title page illustrating a figure, and substitute therefor, new Title page illustrating a figure. (attached)

Signed and Sealed this

Seventeenth Day of April, 2007



JON W. DUDAS Director of the United States Patent and Trademark Office

(12) United States Patent Hillyer et al.

(10) Patent No.: (45) Date of Patent:

US 7,125,809 B1 Oct. 24, 2006

(54) METHOD AND MATERIAL FOR REMOVING ETCH RESIDUE FROM HIGH ASPECT RATIO CONTACT SURFACES

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 (US)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
- (21) Appl. No.: 09/653,561
- (22) Filed: Aug. 31, 2000
- (51) Int. Cl. H01L 21/302 (2006.01) H01L 21/461 (2006.01)
- (52) U.S. Cl. 438/725; 438/597; 257/E23.007

See application file for complete search history.

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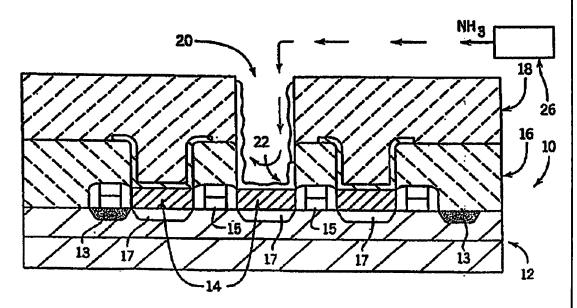
• cited by examiner

Primary Examiner—Alexander Ghyka (74) Attorney, Agent, or Firm—Dickstein Shapiro LLP

(57) ABSTRACT

Contact openings in semiconductor substrates are formed through insulative layers using an etchant material. The etchant typically leaves behind a layer of etch residue which interferes with the subsequent deposition of conductive material in the opening, as well as the conductive performance of the resulting contact. A method of etch removal from semiconductor contact openings utilizes ammonia to clean the surfaces thereof of any etch residue.

84 Claims, 6 Drawing Sheets



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Replace Figure 6 with the following Drawing Figure 6.

